

BRIEF ARTICLES

Herbicide Induced Sclerodermoid Reaction Mimicking a Photodistributed Pattern

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CASE REPORT

A 69 year old Caucasian man with Type II skin presented with a two month history of a rash on his trunk and upper extremities. The rash was asymptomatic and had not changed to his knowledge during this time period. Review of systems was otherwise negative. The only medication the patient endorsed taking was benazepril-hydrochlorothiazide, which he had been taking for 2-3 years.

Physical examination revealed irregular hyperpigmented patches and slightly atrophic plaques in a sharply demarcated pattern on the back and upper extremities (Figure 1), as well as faintly violaceous digitate patches on the abdomen. Biopsies revealed no epidermal changes with thickened collagen bundles extending into the subcutaneous fat (Figure 2), consistent with localized scleroderma.

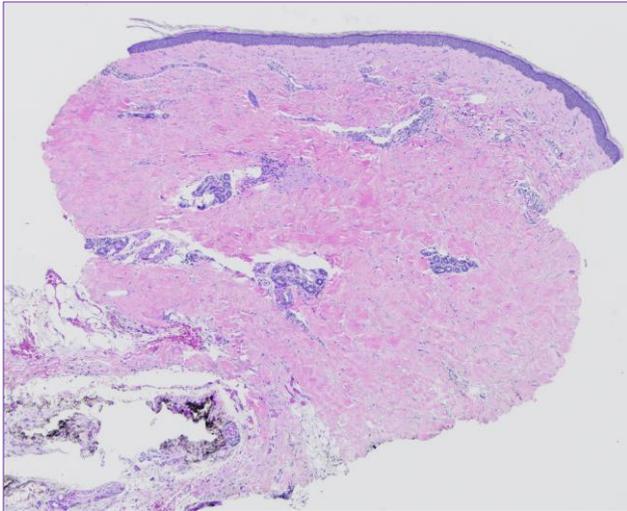
Upon further questioning, the patient revealed that a few weeks prior to rash onset he recalled being sprayed accidentally with a herbicide spray, Pasture Pro, after a tube broke on his tractor. He was wearing thick slacks and a thin cotton T-shirt, which became sopping wet. He decided to

continue working outside in the sunlight and took a shower later that evening.

Figure 1. Clinical Image: Sharply demarcated hyperpigmented patches on back along the patient's pant line.



Figure 2. Histopathology: Hematoxylin-eosin staining, 40x: Minimal epidermal changes with thickened collagen bundles spanning the reticular dermis in company with a sparse superficial and deep lymphocytic infiltrate containing plasma cells.



DISCUSSION

Morphea is an inflammatory process causing sclerotic skin changes of which many morphologies have been described. Sclerodermoid reactions are a subtype of morphea and have been documented in the literature occurring after exposures including silica, solvents, hair dyes, epoxy resins, welding fumes, pesticides, herbicides, and plant solvents.¹

Herbicidal compounds known for causing sclerodermoid reactions include malathion, diniconazole, bromicil, diuron, and aminotriazole.^{2,3} The active ingredient in the herbicide Pasture Pro, 2,4-Dichlorophenoxyacetic acid (2,4 D), has not been reported to our knowledge as a cause of scleroderma. Of note, this ingredient is a known component of the toxic herbicidal formulation, Agent Orange, which is also not documented in the literature as a cause of localized scleroderma.⁴

This case presented a diagnostic quandary due to its sharply demarcated pattern along

clothing lines, mimicking photodistribution. For this unusual case, it was important to consider the broad differential diagnosis that can be formed via both clinical and histopathological findings. These include medication induced sclerodermoid reactions, Sclerodermoid Porphyria Cutanea Tarda, Cutaneous T Cell Lymphoma, and Atrophoderma of Pasini and Pierini. The patient had not taken any of the reported medications associated with these conditions⁵, and the diagnosis was made by a combination of this patient's history and physical examination as well as histopathological evaluation. The most likely explanation for the unique distribution in this case is that due to the thin cotton T shirt, these areas were most exposed to the chemical as opposed to the skin protected under thick work pants.

Treatment for morphea is determined by the severity and extent of disease.⁶ This patient is currently being treated with triamcinolone 0.1% ointment and declined treatment with systemic medications. Providers should be aware that sclerodermoid reactions induced by topical agents, such as herbicide sprays, can present in unusual patterns such as the pseudo-photodistribution in this case. The active ingredient 2,4 D also necessitates further investigation to determine the safety profile in relation to localized scleroderma.

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